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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,440	12/28/2005	Fumio Kato	043888-0427	3638

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EXAMINER	
BUCHANAN, JACOB	

ART UNIT	PAPER NUMBER
4133	

MAIL DATE	DELIVERY MODE
07/09/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,440	KATO ET AL.	
	Examiner	Art Unit	
	Jacob Buchanan	4133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :28 December 2005, 12 March 2008, 24 March 2009.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 12 March 2008 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

2. The information disclosure statement filed 24 March 2009 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

3. Claim 2 is objected to because of the following informalities: claim 2 does not end with a period. Additionally it appears that the limitation "the discharge capacity per gram of said nickel oxyhydroxide in said second plateau is 10 to 25 mAh" was inadvertently removed from the claims as first submitted and from the remarks and preliminary amendment. For examination purposes the recited limitation has been treated as if it were present. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christian (WO 03/076339) in view of Noya et al. (US Patent 6,566,009).

Regarding claims 1 and 2, Christian discloses an alkaline battery (10) comprising:

- a positive electrode (12), a negative electrode (14) and an alkaline electrolyte (P8/L4-5 L9, see Figure 1),
- said positive electrode (12) comprising a positive electrode material mixture containing nickel oxyhydroxide (P1/L26-30) and a graphite conductive material (P10/L6-7 & P10/L22-31),
- wherein said nickel oxyhydroxide comprises a crystal having a beta type structure (P6/L6-8), said crystal having manganese dissolved therein (P3/L6-9), and
- the amount of said manganese contained in said nickel oxyhydroxide is 0.5 to 10 mol% relative to the total amount of nickel and said manganese contained in said nickel oxyhydroxide (P3/L8-9).

To clarify, Christian discloses that a nickel oxyhydroxide can be prepared by combining a nickel hydroxide and a hydroxide salt in an inert atmosphere to form a mixture (P4/L4-5). Christian further discloses that nickel hydroxide can include at least one bulk dopant including aluminum, manganese, cobalt, zinc, gallium, indium, or bismuth. It is noted that when a material, in this case nickel oxyhydroxide, is made by combining another material, in this case nickel hydroxide, which is doped with a substance, in this case manganese, the resulting material will contain the doped substance.

While Christian discloses an alkaline battery (10) comprising a beta type nickel oxyhydroxide, the reference does not explicitly disclose a battery also comprising electrolytic manganese dioxide. The reference does however discloses that generally alkaline batteries have a cathode, an anode, a separator and an alkaline electrolyte solution and that the cathode can include a cathode material including manganese dioxide or nickel oxyhydroxide (P1/L5-8).

Noya discloses an alkaline battery (C1/L41-50, see Figure 1), comprising a positive electrode containing manganese dioxide **and** nickel oxyhydroxide as an active material (C1/L41-50). Noya further discloses that when a positive electrode contains 20 to 90% by weight of manganese dioxide and 80 to 10% weight of nickel oxyhydroxide, the alkaline battery has excellent discharge characteristics at the initial stage and after storage at high temperatures (C2/L56-60).

Christian and Noya are combinable because they are both concerned with the same field of endeavor, the making of an alkaline battery comprising nickel oxyhydroxide.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the manganese dioxide in the electrode of the alkaline battery, as taught by Noya, with the nickel oxyhydroxide in the electrode of the alkaline battery as taught by Christian, for the purpose of having a battery with excellent discharge characteristics at the initial stage and after storage at a high temperature.

Christian further discloses the battery (10) comprising an alkaline electrolyte (P1/L5-6) wherein the electrolyte can be an aqueous solution of alkali hydroxide, such

as potassium hydroxide, sodium hydroxide, lithium hydroxide, or mixtures thereof (C8/L22-23). The electrolyte, as further disclosed, can contain between 15 wt% and 60 wt%, between 20 wt% and 55 wt%, or between 30 wt% and 50 wt% alkali hydroxide dissolved in water (P8/L23-25). In an example, beta nickel hydroxide and natural graphite and an aqueous electrolyte solution containing 38 wt% KOH and 2 wt% ZnO with a mortar and pestle (P15/L24-27). Although Christian discloses in a particular example a 38 wt% KOH aqueous solution (as opposed to the 40 wt% required by the claim) the claimed amount would have been obvious to one of ordinary skill in the art through routine experimentations in an effort to optimize discharge characteristics and electrolytic activity taking into consideration the relative amounts of the active materials, manganese dioxide and beta nickel oxyhydroxide, the amount of conductive material, and the size of the battery.

Regarding the claim limitations recited in claim 2, which are directed to specific properties of the electrode comprising nickel oxyhydroxide and conductive graphite ("a constant current per gram of said nickel oxyhydroxide of 5 mA is applied to said molded article, the potential of said molded article has a first plateau region ranging from +500 to +100 mV relative to an Hg/HgO electrode and a second plateau region ranging from +100 to -400 mV relative to said Hg/HgO electrode; the discharge capacity per gram of said nickel oxyhydroxide in said first plateau region is 220 to 250 mAh, and; the discharge capacity per gram of said nickel oxyhydroxide in said second plateau region is 10 to 25 mAh"), it is noted that once nickel oxyhydroxide and conductive graphite are mixed with an aqueous electrolyte solution containing 38 wt% KOH (see Christian,

P15/L24-27), and therefore is substantially the same as the mixture of nickel oxyhydroxide, conductive graphite, and 40 wt% KOH, it will, inherently, display recited properties absent any evidence to the contrary. See MPEP 2112.

Regarding claims 3 and 4, modified Christian discloses all of the claim limitations as set forth above. Noya further discloses the alkaline battery wherein the amount of said nickel oxyhydroxide is 10 to 80 wt% relative to the total amount of said nickel oxyhydroxide and said electrolytic manganese dioxide contained in said positive electrode material mixture, and the amount of said electrolytic manganese dioxide is 20 to 90 wt% relative to said total amount (C2/L56-60). Noya further discloses data results of using the alkaline battery with nickel oxyhydroxide and manganese dioxide within these ranges such as 90 wt% manganese dioxide and 10 wt% nickel oxyhydroxide in battery number 3 or 20 wt% manganese dioxide and 80 wt% nickel oxyhydroxide in battery number 6 (see Table 6, C7/L25-41).

Regarding claims 5 and 6, modified Christian discloses all of the claim limitations as set forth above. Christian discloses the battery wherein the electrode can include, for example, between 2 wt% and 35 wt%, between 3 wt% and 10 wt%, or between 4 wt% and 8 wt% of conductive carbon particles or a blend of conductive carbon particles (P10/C28-31). Noya discloses the battery wherein the manganese dioxide, nickel oxyhydroxide, and graphite were mixed at the weight ratio of 50 to 50 to 5 (C3/L33-35).

Regarding claims 7 and 8, modified Christian discloses all of the claim limitations as set forth above. Noya discloses the battery wherein said positive electrode material

mixture further contains at least one rare earth metal oxide selected from the group consisting of **Y_2O_3**, Er_2O_3, Tm_2O_3, Yb_2O_3, and Lu_2O_3 (C1/L41-50), and the amount of said rare earth metal oxide is 0.1 to 2 wt% relative to the total amount of said nickel oxyhydroxide, said electrolytic manganese dioxide, said graphite conductive material and sad rare earth metal oxide (C2/L48-55 & C6/L11-25, see Table 4).

To clarify, Noya discloses the battery comprising at least one compound selected from the group consisting of an oxygen-containing zinc compound, an oxygen-containing, calcium compound, an oxygen-containing yttrium compound, and an oxygen-containing titanium compound (C1/L41-50). An oxygen-containing compound from this group added to the positive electrode mixture raises the oxygen overpotential for the oxygen-generating reaction (C2/L26-33). Noya continues to disclose the oxygen-containing compound contained in the positive electrode is 0.1 to 10% by mole of nickel oxyhydroxide, and especially when the content of oxygen-containing compound is 0.1 to 5% by mole of the nickel oxyhydroxide, discharge characteristics at the initial stage is improved (C2/L48-55). Noya further discloses data results using the alkaline battery with amounts of yttrium oxide within these ranges such as 0.1, 1.0, and 5.0 mole% of yttrium oxide (C6/L11-25, see Table 4).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Buchanan whose telephone number is (571)270-

1186. The examiner can normally be reached on Monday - Thursday 7:30-5:00 and alternating Fridays 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571)272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. B./
Examiner, Art Unit 4133

/Barbara L. Gilliam/
Supervisory Patent Examiner, Art Unit 4133